

REMARKS

Claims 29-69 are active. The claims have now been amended to refer to untransformed cells. Support for this language is found in the specification at page 11, see e.g., lines 6-8. Claims 29 and 66 have been amended to further describe the electrophoretic patterns. Support for this amendment is found in original Claims 7-10 and in the specification, e.g., at pages 15, 16, and 25-27. Claims 36, 37 and 47 have been amended for clarity by deleting the word "the". Accordingly, the Applicants do not believe that any new matter has been added. Accordingly, favorable consideration is now requested.

The Applicants thank Examiner Forman for the courteous and helpful discussion of August 10, 2004. While no formal agreement was reached it was suggested that Applicants might distinguish the claimed methods from that of Henderson et al. by directing the claims to methods using untransformed cells. Possible ways to address the disclosure of Nilsson et al., U.S. Patent No. 5,578,445, were reviewed. Col. 2, lines 25-27 was indicated as referring to a method which uses untransformed cells and col. 5, line 48-col. 6, line 8, and as exemplifying a comparison of cells cultured with no added hormone, estradiol, tamoxifen and estradiol/tamoxifen. Possible amendments to help distinguish the present invention from the method of Nilsson et al. were discussed.

In view of the above, independent Claims 29 and 66 have been amended to include a new wherein clause further distinguishing the present invention. Accordingly, favorable consideration and allowance of this application is now respectfully requested.

Rejection—35 U.S.C. 112, second paragraph

Claims 36, 37 and 47 were rejected under 35 U.S.C. 112, second paragraph as being indefinite. This rejection is moot in view of the amendments above.

Rejection—35 U.S.C. 102(b)

Claims 29-30, 46, 53 and 67 were rejected under 35 U.S.C. 102(b) as being anticipated by Henderson et al., U.S. Patent No. 6,051,417. The claims now require the use of an untransformed cell and thus are distinguishable from the Henderson method which is directed to use of a cell transformed with a transcription region and marker. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

Distinguishing Nilsson et al.

The remaining prior art rejections are based on Nilsson et al., U.S. Patent No. 5,578,445. This patent is directed to a method of evaluating the effects of a substance on selected cell types bearing endogenous intracellular hormone receptors, see e.g. the Abstract. These effects are determined by measuring the relative amounts of expressed proteins, such as pS2 (col. 6, lines 1-7, col. 7, lines 35-64, col. 8, lines 5-14), Cath D (col. 10, lines 55-65, col. 11, lines 5-30, alkaline phosphatase (col. 14, lines 40-64) or SHBG (col. 16, lines 1-6) released by the tested cells. Alternatively, the amount of ATP (col. 12, lines 55-65, col. 13, lines 5-15) released by the cells may be measured. This patent does not disclose or suggest measuring cellular responses to a target compound by determining differences in RNA (or the corresponding cDNA) patterns.

Independent Claims 29 and 66 now require the electrophoretic detection of RNA (or cDNA) gene expression patterns of a cell exposed a test substance. The comparison of the gene expression pattern in the present invention is carried out based on the electrophoretic pattern of a plurality of RNAs (especially mRNA) generated by transcription of the gene or on the electrophoretic pattern of cDNAs which may be produced by reverse transcription of these RNAs. Further, in the present invention, the electrophoretic pattern of a plurality of

RNAs or cDNAs that are obtained from the same cell. With this technique of the present invention it can be visually clarified which gene of a particular cell is effected by a test substance.

By contrast, Nilsson et al. do not compare the electrophoretic pattern of RNA or cDNA, but, as is clear from the recitations of Claims 11 to 14 of this document, focus on the amount of the protein product for comparison. The Nilsson technique requires carrying out a single quantitative analysis for each of the proteins used as indexes. Consequently, this method only provides information about the expression of a single protein and does not provide any information at all about the effects of the tested agent on RNA expression which correlates with the expression of numerous proteins.

Nilsson et al. (Abstract, last three lines) refers to “the pattern of antagonistic versus agonistic effects”. However, the term “pattern” used there indicates the difference in the effect of a particular test substance between cells obtained from a plurality of different kinds of tissues (and not an mRNA/cDNA pattern produced by the same type of test cell exposed or not exposed to a given agent). Thus, the pattern used by Nilsson is entirely different from the electrophoretic pattern of RNA or cDNA of the present invention. Accordingly, the Applicants respectfully submit that Nilsson et al. does not disclose or suggest the present invention and that the following rejections based on this patent should be withdrawn.

Rejection—35 U.S.C. 102(b)

Claims 29-34, 41, 45-46, 50-54, 56-58, and 65-69 were rejected under 35 U.S.C. 102(b) as being anticipated by Nilsson et al., U.S. Patent No. 5,578,445. Independent Claims 29 and 66 now require measurement of the gene expression patterns based on the electrophoretic pattern of RNA or cDNA. As discussed above, the method of Nilsson et al.

does not disclose or suggest such a method. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

Rejection—35 U.S.C. 103

Claims 35-40 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al., U.S. Patent No. 5,578,445, in view of Falb, U.S. Patent No. 5,849,578. Independent Claims 29 and 66 now require measurement of the gene expression patterns based on the electrophoretic pattern of RNA or cDNA. As discussed above, the method of Nilsson et al. does not disclose or suggest such a method. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

Rejection—35 U.S.C. 103

Claims 42-44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al., U.S. Patent No. 5,578,445, in view of Horwitz et al., U.S. Patent No. 5,750,015. Independent Claims 29 and 66 now require measurement of the gene expression patterns based on the electrophoretic pattern of RNA or cDNA. As discussed above, the method of Nilsson et al. does not disclose or suggest such a method. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

Rejection—35 U.S.C. 103

Claim 47 was rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al., U.S. Patent No. 5,578,445, in view of Dharmesh et al., P.N.A.S. 90:11127. Independent Claims 29 and 66 now require measurement of the gene expression patterns based on the electrophoretic pattern of RNA or cDNA. As discussed above, the method of Nilsson et al.

does not disclose or suggest such a method. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

Rejection—35 U.S.C. 103

Claims 48, 49, 55, and 59-64 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsson et al., U.S. Patent No. 5,578,445. Independent Claims 29 and 66 now require measurement of the gene expression patterns based on the electrophoretic pattern of RNA or cDNA. As discussed above, the method of Nilsson et al. does not disclose or suggest such a method. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

CONCLUSION

In view of the above amendments and remarks, the Applicants respectfully submit that this application is now in condition for allowance. Early notification to that effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220



Thomas M. Cunningham
Registration No. 45,394